



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Shu KOBAYASHI, et al.

Group Art Unit: 1713

Serial No.: 10/527,699

Examiner: LEE, RIP A

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For: PALLADIUM CATALYST COMPOSITION

DECLARATION UNDER 37 CFR 1.132

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

December 27, 2007

Sir:

I, Kuniaki Okamoto, hereby declare as follows.

I graduated from Gifu Pharmaceutical University in March, 1990.

I began employment with Wako Pure Chemical Industries, Ltd., the Assignee of the above-identified application in April, 1990 and have been engaged in said company, since that time, in the study of Organic Chemistry and Process Chemistry in Tokyo Research Laboratories (currently, Specialty Chemicals Research Laboratories).

The following experiment was conducted by me.

Experimental data

Substitution reaction at the allyl position using the palladium composition in which the palladium is carried directly on the crosslinked polymer having the functional group

(1) Fixation of palladium on a crosslinked polymer

Excessive amounts of 1N hydrochloric solution of PdCl_2 ($2.8 \times 10^{-2}\text{M}$) were added to 5 gram of gel type styrene anion-exchange resin (amberlite IRA-400). After filtration, obtained resin was washed with 100mL of ion-exchange water and 100mL of methanol in order and was dried under reduced pressure until the weight did not change. The dried

resin is suspended in 30ml of ion-exchange water and stirred under hydrogen atmosphere at room temperature for 4 hours. After filtration, obtained resin was washed with 100mL of ion-exchange water and 100mL of methanol in order and was dried under reduced pressure until the weight did not change to obtain 5.05 g of the gel type styrene anion-exchange resin on which palladium is carried (palladium composition). The volume of the palladium is 1.980mmol in 1g of the palladium composition.

(2) A substitution reaction at an allyl position (The method is carried out according to the example 7 in the present specification)

In the presence of 13 mg of the palladium composition obtained in (1) (the volume of palladium metal : 0.025mmol) and 26.3 mg of triphenylphosphine, 63.9 mg of allyl methyl carbonate and 104.1 mg of dimethyl phenylmalonate were added to 5 ml of tetrahydrofuran, and they were reacted by heating and dry distillation for 2 hours. After completing the reaction, hexane was added to the reaction solution and stirred. When the reaction solution became transparent, a catalyst composition was filtered off. After the filtrate was condensed, it was purified by silica gel thin-layer chromatography.

However, the obtained composition did not include dimethyl allylphenylmalonate. That is, the substitution reaction did not proceed.

The undersigned declares that all statement made herein of his/her own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed this 27th day of December, 2007

Kuniaki Okamoto
Kuniaki Okamoto